

## Patent Abstracts of Japan

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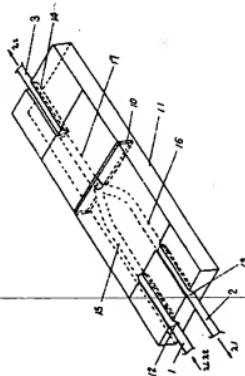
APPLICATION DATE : 07-06-85  
 APPLICATION NUMBER : 60124496

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TITLE : OPTICAL MULTIPLEXING AND  
 DEMULTIPLEXING DEVICE



**ABSTRACT :** PURPOSE: To eliminate the need for adjustment and to reduce the time for assembly by positioning optical fibers fixed in V-grooves on a substrate so as to face each other without the axial mis-alignment from the distributed refractive index waveguides in the substrate and inserting a multi-layered film filter consisting of a dielectric material into the coupling section of the waveguides.

CONSTITUTION: The V-shaped grooves 12-14 are provided to the substrate 11 and the optical fibers 1-3 are fixed therein. The fibers 1-3 are so fixed as not to deviate from the axial centers of the distributed refractive index waveguides 15-17 provided in the substrate 11. The multi-layered film filter 10 consisting of the dielectric material is inserted into the branching and coupling section of the waveguides 15-17. The filter 10 reflects the light of the wavelength  $\lambda_1$  of the incident light of the wavelengths  $\lambda_1, \lambda_2$  from the fiber 1, emits the same from the fiber 2 and emits the light of the wavelength  $\lambda_2$  from the fiber 3. The light of the wavelengths  $\lambda_1$  and  $\lambda_2$  is emitted from the fiber 1 if the light of the wavelength  $\lambda_1$  is made incident to the fiber 2 and the light of wavelength  $\lambda_2$  is made incident to the fiber 3. The device which has a low loss and permits easy assembly is thus obtid.

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